



Report
of the
Committee appointed to
consider the question of
the maintenance and
improvement of the
existing Cattle Breeds
of the Bombay
Presidency.

**Report required by Government Order No. 3252, dated 24th December 1921, R. D.,
on the Steps needful for the Improvement of Fodder and Cattle.**

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Report of the Cattle Breeding Committee.

PART I.—PRELIMINARY REMARKS.

1. The question raised by the public of the Bombay Presidency of the rapid deterioration of both draught and milch cattle and the differences of opinion as to the causes of this deterioration led the Government of Bombay to appoint a Committee to investigate the question. By Government Order No. 3252 of the 24th December 1921, R. D., the following Committee were appointed:—

Rao Bahadur G. K. Chitale, M. L. C. (Chairman).

Mr. Nariman R. Kothawala.

Mr. S. H. Kurli.

Mr. E. M. Hodgson, Conservator of Forests, C. C.

Khan Sahab J. D. Buxy, Deputy Superintendent, Civil Veterinary Department, Bombay Presidency.

Rao Sahab Bhimbhai M. Desai, Deputy Director of Agriculture, Gujarat.

Mr. E. J. Bruen, Deputy Director of Agriculture for Animal Breeding, Bombay Presidency (Secretary).

2. The Committee met in Poona on the 13th March 1922 to settle its plan of campaign. The following two days were occupied in examining local experts and witnesses. It was decided on the evidence obtained that it would be impossible to make any suggestions without first seeing the actual condition under which breeding was carried on.

3. The Committee decided on collecting evidence from some of the leading persons of Bombay to ascertain how far religious sentiment has to be respected. The other non-official witnesses were selected from persons interested in the cattle trade, dairying, &c. The Committee, to satisfy themselves on the many points raised, visited Dharwar, Nagar, Khandesh, Nasik and Gujarat districts. The method adopted in cattle raising is totally different in each of the above mentioned tracts. All the Pinjrapols and Gou Rakshans situated in these tracts were visited, and the evidence of the controlling bodies recorded. The Committee have, after careful deliberation, arrived at the following conclusions.

PART II.—FODDER.

(i) Existing state of affairs.

4. From all the evidence obtained and from the personal experience of the Committee it was unanimously decided that the first step necessary to cattle improvement is the improvement in the existing conditions of fodder, especially as regards silage and storage of hay and kadbi.

5. In the old days the breeders moved with their cattle from one part to another. Like all nomadic and pastoral people their movements were guided by the supply of water and pasturage; when these failed in one place they moved on. Moreover, experience taught them that certain grazing grounds were best at certain seasons, thus they knew what to seek and what to avoid. This constant migration afforded their cattle not only that variety of food and change of ground so essential to health, but in a way acted as a preventative of diseases, the dead and very sick were left behind, the weak

stragglers became a prey to wild animals and so a process of natural selection took place. The fact that this method of cattle raising is no longer possible on a large scale is one of the causes of the recent deterioration.

6. Formerly as the fodder presented no difficulty, cattle were raised for practically nothing. To-day owing to the spread of cultivation and rise in the price of fodder the case differs, breeding and raising cattle cost a great deal more than the price realised, except perhaps in parts where grazing is still available. Hence cattle raising on the ranching system, formerly a lucrative business, is now fast dying out.

7. Naturally the loss of grazing is causing a certain amount of discontent, both amongst the stock producers as well as the users of both draught and milch cattle. In parts of the Presidency notably Nasik and Khandesh and along the rugged tracts adjoining the Western Ghats, an ample supply of grazing is still available, but this suffices only for a portion of the year. It is an established fact that cattle brought up or maintained on these monsoon grasses thrive exceedingly well for the time being, but when left to maintain themselves on dry, indigestible fodder for the remainder of the year, a very rapid deterioration sets in, which is not only injurious to the parent stock but worse still in its effects on their progeny. Successive years of this treatment have reduced the cattle to the standard we see to-day.

8. The present method of sub-division of lands by the Hindu law makes it difficult for the small cultivator to replace this professional breeder, as the holding produces barely sufficient fodder to maintain essential cattle; but the Committee are uncertain as to whether an enlargement of these holdings to the economical standard would have the effect of replacing the professional breeder.

9. This extinction of the professional breeder who depended entirely on grazing for his livelihood was noticed in the Kapadvanj Taluka of the Kaira District and Viramgaum Taluka of Ahmedabad District, where the Rabari has completely abandoned his profession. Again, in the Decoon, there was formerly a class of person known as Gowsavi, who at one time took away dry cows and buffaloes and grazed them on the vast areas of grazing land then available. Now owing to grazing restrictions and the very rapid growth of cultivation, a large portion of these lands is not available, consequently this very useful class of person is practically extinct and the needful work of relieving the large towns and villages of their dry stock during the time of scarcity is also lost.

10. From the foregoing it will be seen that at the present time the grazing lands available do not meet the requirements of the country.

11. The following figures will show how India is situated as regards the facilities offered as compared with other countries for raising good cattle:—

Name of country.	Relation of cultivated land to grazing area.	
	Cultivated.	Grazing.
Great Britain and Ireland	3	1
Germany	6	1
New Zealand	3	1
United States	16	1
Japan	6	1
India	17	1

Cattle and Population Statement.

No.	District.	Population.	Total buffaloes.	Total cows.	Average buffaloes per 100 popula- tion.	Average cows per 100 popula- tion.	Cultivated land.	Bullocks.	Average per pair of bullocks.
1	Ahmedabad	8,90,911	89,766	78,108	10.08	8.7	18,49,698	1,15,904	31.9
2	Kaira	7,10,982	1,05,479	29,549	14.7	4.15	8,03,955	1,03,264	16.9
3	Panch Mahals	3,74,860	44,261	65,918	11.8	17.7	6,27,327	1,20,277	14.02
4	Broach	3,07,745	26,780	11,570	8.7	3.6	6,61,523	55,623	28.8
5	Surat	6,74,351	49,016	64,807	7.2	9.6	7,56,078	1,10,428	14.06
6	West Khandesh	6,41,847	32,930	70,095	5.1	10.9	15,75,421	1,42,695	22.08
7	East Khandesh	10,75,837	65,867	89,293	6.2	8.2	20,61,981	2,09,343	19.7
8	Nasik	8,82,576	27,774	1,44,797	3.3	17.4	24,81,388	2,25,329	22.02
9	Ahmednagar	7,81,552	21,869	1,20,993	2.9	17.7	32,10,490	2,39,161	26.9
10	Poona	10,09,033	36,261	1,11,609	3.5	11.05	25,63,222	2,07,414	24.7
11	Sholapur	7,42,010	28,952	68,197	3.9	12.5	25,26,407	1,65,105	30.6
12	Satara	10,26,259	93,033	1,22,211	8.09	11.9	28,34,140	2,21,098	21.05
13	Belgaum	9,52,990	90,678	74,618	9.5	7.8	21,98,676	1,89,326	28.2
14	Bijapur	7,96,876	63,526	75,315	7.9	9.4	32,32,319	1,70,491	37.9
15	Dharwar	10,86,924	84,614	92,825	8.1	8.9	24,19,016	2,05,347	28.6
16	Thana	7,59,916	32,009	1,12,360	4.2	14.7	10,47,160	1,72,601	12.1
17	Kolaba	5,62,912	25,182	80,400	4.4	14.2	8,02,184	1,23,756	12.9
18	Ratnagiri	11,54,214	40,190	1,20,637	3.4	10.4	18,08,574	2,58,075	14.2
19	Kanara	4,01,727	23,049	65,941	5.7	10.4	3,39,324	96,710	7.02

12. In the United States there are 13 acres of grazing land per head of livestock, whereas in India there is only an area of 1.3 acres. This condition as it stands is very unsatisfactory; but when one remembers that such large areas are necessary in temperate and sub-tropical countries, where the growth of grass is encouraged, not only by the climate, but also by public and Government enterprise, it stands to reason that more land per head of livestock is essential in a tropical country like India where practically nothing has been done to improve the quality and capacity of these lands.

13. Both from expert evidence and from evidence obtained by breeders of cattle, the Committee are agreed that the present forest grasses which are stored by Government do not meet requirements during a famine year, for the following reasons:—

(1) The majority of the hay supplied by the Forest Department not only has to be sent to a great distance but is admittedly of an inferior quality, the cultivator going so far as to state that it is more injurious than beneficial, and he will only use it as a last resort. However this may be, it is an absolute fact that the fodder saves many cattle in famine years. Evidence was given by the Conservator of Forests, Utilization Circle, that the improvement of hay supplied for famine fodder purposes was not a practical proposition.

(2) Owing to the long distances fodder has to be transported by rail and road, there is great waste and enhancement of price, while the facilities for transport being poor, delivery cannot be effected when most urgently needed.

(3) Silage is practically not made at all, though the material for producing it is available in many places. In tropical parts of America

production of silage alone makes cattle keeping and dairying possible. In India, were silage making developed, both the quantity and quality of the fodder would be increased. Whereas hay-making clashes with the grain harvest and is nearly always delayed, in consequence grass is ready for cutting for silage a month before the harvest when labour is available. Only where the rainfall is excessive might silage making possibly be difficult. From the evidence good kadbi is available in large quantities in good years.

(ii) *Proposals for improvements.*

14. The Committee recommend as follows:—

(1) So far as possible sufficient grazing land should be reserved for grazing and fodder for each village in the talukas selected by the Committee (*vide* paras. 37 to 40) for carrying on the business of cattle breeding. This reservation of grazing land is, however, to meet the needs during semi-famine years.

(2) That kadbi or good grass which can be obtained in every district during a fair season at a cost of Rs. 10 to 15 a 1,000 lbs. be purchased and stored in suitable centres in or near each of the districts frequently visited by famines. This year (1922) being very favourable, part of the expenditure allotted to jungle grass should be devoted to purchasing, pressing and storing kadbi. This fodder should be sold at a small profit to the villagers during famine years. The stores of kadbi to gradually replace the present grass famine fodder now collected and stored by the Forest Department.*

(3) With a view of making the people self-reliant, of providing the best kind of fodder available near famine-stricken areas and to reduce expenditure, especially on transport, the Committee strongly recommend that the village Panchayats in and near such areas be induced to start fodder, particularly kadbi storage, Government granting pecuniary assistance at first. Advantage should be taken of the present good year.

(4) That, as observed, a very large quantity of kadbi fodder is wasted at present for the want of converting it into a suitable form for cattle to consume, Government should take steps to introduce and demonstrate the use of suitable hand or cooperative power chaff-cutters in villages all over the Presidency.

(5) That Government demonstrate on a large scale the use of silage by erecting suitable cheap silos and by financially helping in the form of Tagai Co-operative Cattle Breeding Societies and large cattle breeders to preserve fodder in this manner, and thus obviate the waste of much useful material.

(6) That, Government erect power pumping plants on suitable sites either in the famine tracts, or in adjacent tracts, where fodder can be raised by mutual agreement with the land-holders in times of famine.

(7) It was brought to the notice of the Committee that there exist in the Satpudas large areas of good grass land which could provide a great deal of excellent grazing, hay and silage but that owing to scarcity of water for both man and beast no advantage can be taken of these areas. The Committee recommend to Government that the services of a competent Irrigation Officer be lent for ascertaining whether difficulties could not be got over by providing small storage tanks and wells.

15. The Committee, after hearing the evidence of several persons both cultivators and breeders, therefore recommend to Government that certain areas well situated for cattle raising such as Kapadvanj in the Kaira District and Jambusar in the Broach District and similar areas in other breeding tracts, be especially assigned to the raising of cattle by professional breeders. This will prevent discontent between the cultivator and the breeder and at the same time will ensure supervision by the Cattle Breeding Department.

* Note.—If Government approve this proposal, the details could be worked out by the Agricultural Department.

PART III.—CATTLE

(2) *Existing state of affairs.*

16. Some sixty years ago, in the Bombay Presidency, the cattle indigenous to the different tracts were kept pure, and owing to the cheap method of raising cattle, fine specimens of the different breeds were to be found. Today, owing to the ravages of famine, the spread of disease by the more convenient access from district to district by rail or road, by the restrictions on the movements of the professional breeders, inter-breeding and the indiscriminate mixing of different breeds, the cattle have deteriorated very rapidly.

17. The last census figures show that in the Bombay Presidency there were in 1915, 19,50,354 cows to produce the necessary draught cattle to plough some 2,79,69,602 acres. In the year 1919-20 there were 16,36,703 cows to produce the necessary draught to cultivate 2,77,18,894 acres of land.

Now if we take as an average that one pair of bullocks will plough and cultivate 15 acres of land, taking the Presidency on a whole in 1919-20, we would require 36,95,854 bullocks. It will be seen that the number of plough cattle is almost double that of the cows, which naturally means that over 50 per cent. of the Presidency draught bullocks are imported from other provinces. The cultivator of the Dharwar District who requires a pair of good cattle has to pay some Rs. 400 to Rs. 600 per pair. These prices are likely to go on increasing unless the Presidency produces better and more cattle.

18. There are several pure breeds of cattle each particularly suited to the tract in which it is found. These are however fast deteriorating. We have the Kankrej and Wadyal in Gujerat which are eminently suited to the sandy soils and peculiarly deep rutted roads found all over Gujerat. The Dangi found in the Dangs and Western Ghats are particularly useful to the hilly and rainy tracts in which they are found. This hardy animal is best adapted to rice cultivation, for which no other breed can replace it.

19. The Committee were pleased to notice that pure bred and good cattle are given a great deal more attention than mongrels, and feel sure that the more the cattle are improved the more will care and attention be bestowed. During the famine of 1920-21 in Nagar District, in spite of scarcity and high prices, good cattle were cared for by the people whereas the mongrels, being comparatively valueless, were starved to death or sold to butchers.

20. Purity of breed and trueness to type are most essential for a stud bull. Until the people learn to value and are willing to pay for these qualities, cattle breeding must remain as expensive and losing business which can only be conducted by Government.

21. The Khillari breeds are again very essential to the stony country and have been brought up under very trying conditions. No other breed could survive on the small pasturage and meagre food found in their tracts.

22. The Krishna Valley, a large massive breed, is very well suited to the soft deep soils of the Krishna Valley river and could not be replaced efficiently by any other breed. The Amrit Mahal is again very useful in the black soil tract of the Dharwar District, where frequent and fast haulage is essential to good cultivation. The only tracts which are not provided with some form of pure breed suitable to the local conditions are the Central Deccan, Malad and Rainy tracts of the Dharwar District. The selecting or evolving of a breed to suit the conditions of these tracts must be done by Government.

23. The Committee do not recommend the introduction of any foreign blood from outside of India. The cattle of India are particularly prized owing to their comparative immunity to nearly all contagious and fatal cattle diseases, this being a very essential quality for the poor cultivator. Similarly the keeping of a breed that will thrive on the local conditions found is very essential, and this naturally favours the selection of the local pure breed. Hitherto the draft qualities of the bullocks of almost all the different breeds have

attracted undue attention to the total neglect of the milk producing capacity of the cows. The fact that the cows give little or no milk makes cattle breeding unremunerative and discourages enterprise in the direction. By a system of selection, however, and by milking the cows the quantity of the milk can be greatly increased in a few generations. Cows unable to support their young would be discarded. Stud bulls would be taken from cows producing most milk.

24. The Committee notice that very fine specimens of the indigenous breeds are to be had in Mysore and Jamkhandi State, and British India has had to depend a good deal on these States for bulls both as stud bulls and working animals. The demand has so increased on these States that the prices are now getting prohibitive. The reason for the good cattle to be had in these States is the encouragement that has been offered in the past to raise good cattle. Large areas are reserved for grazing and numerous Jatras are held annually, where prizes are offered, and further the States themselves have maintained large pure breed herds.

25. The Committee feel that the time has come when Government must do something similar if the cattle industry is to be encouraged. Quite as good cattle can be raised in British India provided good facilities are offered and the people encouraged.

26. State regulation is required in connection with the production of good cattle, improvement of the existing poor cattle and prevention of the present harmful milk and butter supply. To raise better cattle, and at the same time keep down expenditure, the following are essential:—

(a) Regularity of calving ... This can only be gained by breeding from selection which needs the keeping of records which the professional grazier in India cannot do.

(b) Early maturity ... This can only be obtained by breeding as above and by good feeding.

27. At present, it is impossible for private persons to establish the opening of up-to-date scientific milk producing and selling owing to the want of regulation. The present unscrupulous milk producer is able to adulterate his milk in many ways. This is particularly noticeable in Poona, Bombay and Ahmedabad. A considerable supply of milk is exported to Bombay and other places from Anand. This milk contains boric acid and formalin, added as preservatives in such quantities as to be highly injurious.

28. Scientific dairies are under supervision necessarily entailing expense. The produce, however, is superior; but in a country like India where cleanliness is at a discount such produce is unable to compete with a filthily and more cheaply manufactured article.

29. On the evidence before the Committee and from the latest cattle census report, it has been noticed that the cow is being used less and less each year for the production of milk; this necessitates the keeping of cows to produce draught bullocks, and buffaloes for producing milk. The result is that two animals have to be fed to do the work of one. The Agricultural and Veterinary Departments in the past have encouraged this state of affairs by breeding bulls for the sole purpose of improving the draught qualities of the bullock at the expense of the milk-producing qualities of the cow. This very harmful practice must be stopped. It is a well known fact that the Holstein of Denmark, the finest milk producer in the world, supplies the best draught bullock for the wine-growing tracts in Europe. In this Presidency it has been noticed that all the pure breeds of cows produce hardly enough milk to rear their own calves, much less supply their owners with milk too.

30. Milk in India today, is anything from 2 to 6 times dearer than in any other country in the world. This is due to the poor milk producing qualities of the indigenous cattle. The evidence before the Committee proves that the price of milk is rising rapidly every year. A number of enterprising people have started dairies but all, almost without exception, have failed, firstly owing to the poor milk producing qualities of the cattle, secondly, for want of protection by legislation; and thirdly, for want of encouragement by Government.

31. The Committee whilst touring in Gujarat took the opportunity of visiting some of the so-called dairies in Ahmedabad where the bulk of the butter and other dairy produce is manufactured for the whole of India. The Committee were surprised to find that this industry is carried out under the most filthy and dirty conditions imaginable. These so called "Dairies" are situated in the most insanitary by-lanes of the city. The butter produced under these conditions is sold all over India and a certain amount is exported (even to Great Britain). It is a well known fact that milk and its products are the best medium possible in which injurious bacteria and germs of Typhoid, Diphtheria, Cholera, &c., thrive and in which they are carried and spread over the whole of India. It is essential for the public health that production on honest and scientific lines should be made a financial success, so that the public at large will get a safe and sure supply of milk and its several products.

32. Another very important point is the milk supply of large towns. To improve this, it is essential that Government undertake and breed one or two purely Dairy strains of cattle.

33. The Committee visited several Pinjrapols to see if any use could be made of them in assisting the improvement of the cattle of the country. After careful investigation and from inquiries made from the Managing Committees of these Pinjrapols and from the manner in which they are run, the Committee find that no useful work can be undertaken in these.

(ii) *Proposals for improvements.*

34. Improvement of the cattle of the Presidency will not only take time but will also entail great expense. The Committee recommend that for the time being 4 or 5 talukas, in which the present pure breeds of cattle are found, be taken in hand and every facility and concession be afforded in these talukas to grow pure bred cattle of the breed indigenous to the tract.

35. The Committee now unanimously agree:—

That though the professional breeder must in time become extinct, as the method of producing livestock on the open "ranching" system does not now economically produce good cattle, still until such time as the larger landholder can be induced to take up cattle raising as a side industry to his cultivation, everything possible must be done to encourage and support him.

36. The Committee recommend to Government that Government Farms be started as early as possible for the following breeds and that particular attention be given to the milk-producing capacity of the cows. It is essential for the well being of the calf that the milk giving capacity in the mother should be encouraged and the draught qualities at the same time can be kept up to a high standard. Hence in all breeds, attention must be paid to both milch and draught qualities:—

Kankrej	}	Chharodi, Dist. Ahmedabad, already in existence.
Wadyal		
Gir	}	At Pavagarh in the Panch Mahals Dist.
Malvi		
Surti Buffaloes		
Dangi	...	In the Nasik District.
Khillari	...	In the Satara District.
Tapti Khillari	...	In Shirpur Taluka of the West Khandosh.
Krishna Valley	...	In the Ainapur Taluka, Belgaum District.
Mysore Breed	...	Bankapur, District Dharwar, already in existence.

37. The Malad tract of the Dharwar District must be provided for.

The Committee are at present unable to recommend any special breed for the Central Deccan. The breeds existing are more or less of a mongrel type. Several of the pure breeds are, however, to be seen, but these deteriorate in times of scarcity. The Committee recommend that a Farm be started in the Central

Deccan, where experiments can be carried out of breeding pure cattle and crossing the several breeds to discover, or evolve, a breed that will be suitable to the conditions of this part of the country.

The Committee after seeing and carefully examining the site of Pavagarhi (Zankaria) in the Panch Mahals District strongly recommend to Government that the whole of this site measuring some 3.662 acres should be kept primarily for milk supply (*vide* para. 30). A farm should be started to breed bulls both from Gir cows and also from Gujerat buffaloes of known milking qualities, these two breeds as milk producers being in the highest demand in the Presidency. In addition the Committee recommend that the Malvi breed be bred here as well, the Malvi bullock being a notably good draught animal and prized in many parts of the Presidency. The Committee also recommend that the proposals already submitted to Government by the Agricultural Department for opening up a Fodder Farm and Bull Breeding Farm on the above site be started as early as possible. The farm can also meet a great demand for fodder in famine times.

38. The Committee unanimously agreed that the Government Bull Breeding Farms should be restricted to a certain limit. It is suggested that each farm should keep 100 cows; these to be replaced from the farm bred stock. It will be seen that this number of cows cannot possibly grow sufficient bulls to meet the needs of the Presidency as a whole. It is therefore recommended that the Deputy Director of Agriculture for Animal Breeding and his staff shall concentrate all their energies in the four talukas selected by the Committee in each of the breeding centres and on the Experimental Farms suggested for the Deccan, the Farm Manager taking under his charge all the villages in which breeding is carried on in the talukas in which he is working. By this means it is anticipated that sufficient good bulls can be bred in their natural homes for putting out in the remainder of the Presidency. The propaganda work of improving other parts of the Presidency should be carried on by the territorial Deputy Director of Agriculture. The latter will apply to the Deputy Director of Agriculture for Animal Breeding, for bulls, which will be distributed from the villages in which breeding operations are in force.

39. The activities of the Animal Breeding Department also should be restricted for the present to 4 or 5 talukas in each of the pure breed cattle breeding tracts. The districts and talukas suggested are as follows :—

(1) *Kankrej Breed.* (District Ahmedabad.)

Talukas.—Viramgaum, Sanand, Parantij, Dholka and South Daskroi. (District Surat) Olpad, Chorasi and Jalalpur.

(2) *Dangi Breed.* (Thana, Nasik and Ahmednagar Districts.)

Talukas.—Akola, Igatpuri, Shahapur and Murbad.

(3) *Tapti Khillari Breed.* (Khandesh District.)

Talukas.—Shirpur, Shahada, Sindkheda, Taloda and Nandurbar.

(4) *Khillari Breed.* (Sholapur and Satara Districts.)

Talukas.—Pandharpur, Malshiras, Sangola and Man.

(5) *Krishna Valley Breed.* (Belgaum District.)

Talukas.—Athni, Chikodi, Hukeri and Gokak.

(6) *Mysore Breed.* (Dharwar District.)

Talukas.—Bankapur, Karajgi, Ranebennur and Hangal.

40. The Committee during their investigation found that there is a good demand for bull-buffaloes. These at present are only to be had in Gujerat. The Committee cannot recommend a farm being started for each of the districts but suggest that advantage be taken of all Agricultural Schools and the present and proposed cattle breeding farms to breed a milking strain of buffalo. A small number of buffaloes, say 6, should be attached to each school and 12 to each breeding farm with one stud bull. The produce in each case can be readily sold either in the form of milk or ghee. This will give the students sufficient material to learn milking, the care of cattle and the raising of calves. No extra charges will be necessary as the present staff could do the work and the produce would pay for the feed.

In this manner a good pedigree and acclimatized bull-buffalo will be bred to put out into the villages.

41. The Committee recommend :

(1) That an Inspector be appointed for each of the tracts selected and, as the farms open, the Inspector should manage the farms and do the district work as well.

(2) That these farms should be liberally treated as regards finance, so as to get the best results, and that they should not be expected to "pay" their way.

(3) That Government breed bulls at the above farms and these be put out into the villages of the tracts selected. That the present rules for the Premium bulls should stand, with the exception that Government pay Rs. 10 instead of Rs. 4 which is now far too little, as maintenance. That the bulls on the farms be valued at the current market rate and that these be given out on a concession of a $\frac{1}{4}$ (one-fourth) of their value. That the bull always remains the property of Government and, as each bull is rejected, it should be replaced free of cost and the old bull castrated and sold or used elsewhere.

(4) That Government empower the Deputy Director of Agriculture to replace any entire bull in the village by a farm bred animal; the replaced bull to be castrated and sold and the amount credited to Government. In the event of a bull being dedicated to a God, it should be placed in a Pinjrapol.

(5) That Government legislate for the castration of all entire breeding bulls not approved of by the Animal Breeding Department, if not kept under proper restraint and prevented from wandering.

(6) That Government allot an adequate sum for holding an annual show in each of the tracts; these to be held whether the year is good or bad. The Committee consider this, one of the most essential points in encouraging the breeding of good cattle, and take this opportunity of drawing attention to the importance attached to shows and prizes in all the more advanced countries of the world.

(7) That the territorial Deputy Director control the breeding and improvement of all the other tracts of the Presidency, the advice and assistance of the Deputy Director of Agriculture for Animal Breeding being called for when required. The result of the adoption of this proposal would be to obviate the present overlapping.

(8) Where no farms exist at present, or where existing farms are unable to provide Premium bulls, carefully selected bulls shall be purchased for the purpose at fairs and "Jatras" until a supply becomes available from a farm.

(9) Until such time as the farms are opened, the Committee recommend to Government that a sum of Rs. 7,500 be allotted annually for the purchase of the most likely bulls from fairs and "Jatras", these to be put out on the premium system as suggested above.

(10) That Government start as early as possible the bull breeding farm at Halol. That the breeds recommended be kept and these be treated as purely milking strains.

(11) That a farm be started in the Central Deccan to ascertain the best breed to be introduced or to evolve a new and suitable breed.

(12) That the Tegur Farm be maintained and used as a Bull Breeding Farm for a breed suitable to the Malad tract and be run as a subordinate farm to Bankapur Farm.

(13) The Committee are unanimously agreed that Government take the offer of the Sangvi Cattle Farm which has been made by the Shirpur Agricultural Association at the earliest date possible, and that the farm be brought up to the standard of the other farms recommended.

42. To safeguard the supply of good milch cattle, it is essential to take steps to reduce their slaughter. Such cattle are reared in the country by one class of person and then purchased in the towns by another rich class, who milk them for a short time, then sell them off to butchers. In this way the best milch cattle in the country find their way to Bombay, where they are soon slaughtered and their calves lost.

43. The Committee, with a view to encouraging the rearing of milch cattle; and as the only practical means of reducing their slaughter, recommend that dairy farming be encouraged outside all town limits by giving out suitable lands at the maximum concession rate.

44. The Committee wish to bring to the notice of Government the great necessity of teaching Dairying and Animal Husbandry in a more practical form. This industry has failed in the past and is likely to fail in the future, for the want of good practical men. The industry to-day is being run by laymen, who mostly know little or nothing of the business. Government can hardly advocate the starting of private concerns owing to the dearth of efficient managers. The teaching at the Agricultural College does not fit a man to carry on the work. The theoretical side is well catered for but the practical or more essential side for this country at present is sadly neglected. Without good men in the field; who can demonstrate the practical uses and benefits of the industry, Government cannot expect to make any advancement.

PART IV.—MISCELLANEOUS PROPOSALS.

45. The Committee urge that Government should legislate on the control of all dairies, butter or ghee or any milk producing firms; that the Dairy Experts be consulted and a standard laid down; these standards to be rigorously maintained.

46. The Committee visited the 4 Cattle Breeding Farms now in existence and were greatly impressed, firstly by the fine quality of the cattle, as compared with the ordinary village cattle and secondly by the enormous amount of good such institutions could do for the country. The Committee, however, were very surprised at seeing how the usefulness of these farms is curtailed for the want of a little more financial support. For instance, it has been noticed that the pure bred bulls from (1) Chharodi Farm are not taken advantage of to the extent they ought to be by the breeders and villagers. The Committee ascertained from witnesses that this was due to the insufficient feeding of the bulls, intended to be put out on the Premium System, the Government not allowing these bulls a tenth part of what the breeders feed to the animals which eventually head their herds.

47. The professional breeder, however, is unable to compete with the farms in the matter of *breeding* a good bull, though he fully realizes that, like a queen bee, which is specially fed and pampered, a stud bull *must* have a very liberal diet, else the animal is unable to serve to the extent required and much of its utility is lost. Unfortunately the breeder carries his dieting to such excess that the cost prevents him rearing many bulls. Now the farms *breed* excellent stud standard. In practice a more liberal diet is required for the farm bulls, but at considerably lower expenditure than incurred by a breeder, and much extra feeding is really economical in that the young bull matures at a much earlier age besides being of much more use.

48. The Committee also noticed that although there is a herd of cattle at Chharodi, the farm itself was situated in a very poor locality, the majority of the land being low and water-logged and breeding numerous pests, which are harmful to the health of the cattle. From evidence obtained it seems important to get the best from this fine herd, and it is in consequence necessary that during the rainy season the cattle should be moved to better surroundings. The Committee strongly recommend that Government start a subsidiary farm at Harsol some 26 miles from Chharodi, an area of 500 acres of Government waste land to be handed over for this purpose, and that a sum of Rs. 50,000 be set aside for the required buildings, &c.

49. The Committee recommend that the following money be spent to bring the farm up-to-date and to get the best results from an already large outlay:—

- (1) Rs. 20,000—Drainage.
- (2) „ 20,000—For cattle byes.
- (3) „ 10,000—For miscellaneous.
- (4) That the recurring expenditure on foods and feeding be increased by 50 per cent.

50. The Committee recommend to Government that sufficient grants be allotted to all cattle farms, and they are unanimous that in the absence of sufficient funds it would be advisable to close the farms.

(i) The Bankapur Cattle Breeding Farm is favourably situated, but the Committee are of the opinion that another 200 acres of land along the Vardah river is essential to get the best results from this farm. The only other recommendation the Committee wish to make is that the feeds and feeding grant be increased by 50 per cent.

(ii) The Committee were pleased to see the useful work done by the Surat Farm both in breeding a good Kankrej milk-strain of cattle and in supplying bulls to the district, and at the same time furnishing pure milk.

The Committee, however, recommend that the scope of this farm be enlarged, first by acquiring another 200 acres of land at a cost of Rs. 20,000, secondly by providing more accommodation for the cattle at a cost of Rs. 10,000 and thirdly by increasing the feeds and feeding budget by 50 per cent.

(iii) The Committee visited the Tegur Farm and after very careful consideration and discussion are of the opinion that it should be continued but the present policy changed. It is essential that the breeds of cattle suited for the Malad tract should be decided. The situation of the farm is not very desirable, but, until a better site is procured, the work should be carried on at Tegur.

51. The Committee recommend to Government that something should be done for the improvement of the sheep in this Presidency. With the exception of wet and rainy tracts, the Presidency is on a whole an excellent country for raising good sheep.

52. It has been found in the United Provinces and the Punjab that the first cross of an imported ram with the indigenous sheep resulted in the progeny yielding from 5 to 9 lbs. of wool per annum. The indigenous breed, which numbered 17,00,000 in 1915-16 in this Presidency, yields barely from 1 lb. of wool per animal. The wealth of the country could be increased considerably if the sheep industry were fostered.

53. The Committee recommend that a few sheep and imported rams be maintained on each cattle farm to raise suitable rams for putting out into the district.

Staff necessary to carry out the suggestions of the Committee.

54. The Committee are of the opinion that the designation of the Officer in charge of this Department be changed to Live Stock Expert to the Government of Bombay. This designation will prevent delays in correspondence.

as the present designation is confounded with that of a Deputy Director of Agriculture. In all other Presidencies this Officer is known as the Live Stock Expert. He will be in charge of the Presidency. The Committee recommend that he should have a Personal Assistant for the Presidency in the Provincial cadre of the Agricultural Department.

55. A Divisional Inspector should be appointed on the usual Graduate Fieldman scale of pay for each four talukas in which the breeding operations are to be carried out. When the farm is ready to commence breeding operations, the Divisional Inspector should become Manager of the Farm with an allowance of Rs. 20 per mensem as charge allowance. He will take charge of the farm as well as the breeding operations of the said four talukas.

56. In addition to the Manager, one non-graduate fieldman on the usual pay should be engaged as an assistant. It will be necessary to have a "clerk-store-keeper" together with the usual requisite menial staff.

PART V.

Veterinary, &c., suggestions.

57. It has been brought to the notice of the Committee that in spite of the fact that indigenous cattle are far more immune to disease than foreign cattle, still in the hot weather, and especially during famine, when food is scarce, contagious diseases are common in India and do an immense amount of damage.

58. To meet this the Committee recommend:—

(i) That steps be taken to make it criminal to allow the cattle of an infected village to leave the limits of the village to attend public fairs and sales.

(ii) That inoculation and vaccination be carried out on a larger scale than at present.

(iii) That the Revenue authorities be asked to report an out-break of contagious disease as promptly as possible to the veterinary authorities.

(iv) That all neighbouring Native States be asked to inform the Government Veterinary Department of the out-break of any disease in their States as early as possible and to prevent cattle from an infected State entering British territory, as far as possible.

(v) That suitable measures be adopted in each village to dispose of the carcasses during an out-break.

59. The Committee realize that these recommendations will entail an expenditure on additional staff for the Veterinary Department, but believe that the extra sum expended will be adequately repaid.

PART VI.

Financial Note.

60. The probable cost of the recommendations of the Committee are given below:—

The Committee although anxious that the Pavagarh Scheme be given effect to as early as possible, are not including the expenditure in this Note as it has been dealt with already by the Agricultural Department.

(1) *Fodder storage.*

The Committee are not anxious to recommend any further expenditure under this head, the money allotted for forest grass being considered ample.

This amount can be used both for Government Kaddi Stores as well as for assisting village Panchayats to form stores. Similarly part of this same grant could be used to help towards chaff-cutters and silage-making. Unless the people are prepared to help themselves the Committee feel strongly that Government ought not to do anything in this direction, the duty of Government being to advertise and demonstrate the usefulness of chaff-cutters and silage on a fairly large scale.

(2) *Farms, Premium bulls and shows.*

61. (i) The Committee recommend that funds as shown below be allotted to start one new farm each year. In the first year Sangvi and Tegur Farms, now in existence, should be completed in addition to one new farm.

(ii) Until such time as the farms are all complete and in a position to put out bulls, a sum of Rs. 7,500 should be allotted each year for the purchase of the most likely bulls procurable at fairs and Jattras to put out on a Premium System.

(iii) A sum of money according to needs, but not exceeding Rs. 5,000 in all per annum, should be set aside to hold a show for each breed. These shows to be independent of Jattras and fairs.

(iv) The Committee once again urge that these grants must be continuous for a definite number of years. There is no use starting a farm or any other proposition in connection with cattle unless the grant is to be continuous.

The grant must be guaranteed for at least 10 years, as really useful results cannot be obtained in a much shorter period.

62.

Farms.

	Capital Expenditure.
1st year.—* Sangvi Farm for Tapti Khillari	...Rs. 15,000
* Tegur Farm for Malad Tract	... „ 13,000
Deccan Farm	... „ 50,000
2nd year.—For Maswad Khillari	... „ 50,000
3rd year.—For Krishna Valley	... „ 50,000
4th year.—For Dangi	... „ 50,000
5th year.—* Surat Farm Dairy	... „ 40,000
6th year.—* Chharodi Farm for Kankrej	... „ 50,000 (for subsidiary farm at Harsol).
7th year.—* Bankapur Farm for Amrit Mahal	... „ 20,000 (for acquisition of land).

Total ... „ 3,38,000

* Already in existence.

63. There will be a recurring expenditure of Rs. 20,000 per annum for each new farm as it comes into existence. This does not include the present recurring charges on farms in existence which will remain as they are with an additional 50 per cent. increase on the charges for feeding. The Tegur Farm will however be treated as a new farm.

64. As the expenditure on sheep improvement will be small, no special allotment has been suggested.

PART VII.

*Summary of Proposals.*65. 1. *Fodder.*

- (1) Increased areas to be allotted for grazing.
- (2) Pressed jungle grass (hay) to be gradually replaced by stored kadbi and stored local grass.
- (3) Village Panchayat Stores of kadbi.
- (4) Use of chaff-cutters extended.
- (5) Encouragement of use of silage.
- (6) Erection of pumping plants for growing fodder.
- (7) Small tanks and wells in the Satpudas.

2. *Cattle.*

- (1) For the present professional cattle breeder to be encouraged.
- (2) Existing farms to be maintained.
- (3) Extra farms to be opened.
- (4) Local, indigenous, pure breeds to be encouraged and foreign breeds to be excluded.
- (5) The milk-producing capacity of all breeds to be developed.
- (6) Milch buffaloes to be bred, both at farms and schools.
- (7) Giving out of Premium Bulls to be continued, but on a larger and more liberal scale. Some bulls to be purchased.
- (8) Concentration of the Animal Breeding Department on limited areas.
- (9) Certain modifications in the Agricultural Department Establishment.
- (10) Legislation regarding control of uncastrated bulls.
- (11) Funds to be allotted for shows, &c.
- (12) Dairy farming to be encouraged in various ways.
- (13) Steps to be taken for reducing the slaughter of cattle.
- (14) Legislation proposed in connection with dairies.
- (15) Increased expenditure proposed for farms.
- (16) Discovering or evolving a suitable breed of cattle for the Malad country and Central Deccan.
- (17) Recommendations for the improvement of the sheep.
- (18) Recommendations regarding staff required.
- (19) Veterinary suggestions.
- (20) Permanent Cattle Committee suggested.

PART VIII.

Conclusion.

66. The Committee recommend to Government that the present Committee be appointed permanently to meet once or twice a year to discuss and lay out the lines to be followed each year, for the following reasons.

67. The improvement of the cattle does not entirely rest on expert knowledge in breeding, though this is very essential; the question involves many other very intricate matters, such as religious sentiment, grazing and the reservation of lands, diseases and cultivation; while the great weight of unofficial opinion is also of extreme importance. As in the Agricultural Department the work is practically being controlled by a mixed Board, so the Committee consider that to get the best results from the Animal Breeding Branch of this Department, a Board consisting partly of non-officials should be permanently appointed, which would to a certain extent control the policy of the Department, make necessary suggestions to Government from time to time, and insure work being carried on continuously. The Cattle Breeding Branch of the Agricultural Department must have a continuous policy, as the good work done in one year can by neglect easily be lost in one month. The Governments of all other civilized countries have allotted and set aside a large sum of money for cattle improvement, and this money is well repaid from the results obtained. In India the improvement is not only essential to the welfare of the country, but the religious sentiment of the greater portion of the population calls for some substantial help to maintain and keep the cattle of the country in a prosperous state.

68. The Committee finally take the liberty of pointing out to Government that from all the evidence obtained and from public opinion Government can at no time pay too much attention to the improvement of the cattle, both draught and milch, of the Presidency, and that every rupee spent will have the whole-hearted support of the entire public of the Presidency. This expenditure, apart from religion and sentiment, is essential from an economic point of view, as milk at a reasonable price is the cheapest and most beneficial form of food any nation could have, especially in India, where the majority of the people are vegetarians. The infant mortality in India has been great in the past and is higher to-day than in any other country. This is due in great measure to the short supply and high price of milk. The remedy lies in the improvement of the cattle.

69. Finally the Committee suggest that if their recommendations should meet with the approval of Government, this report should be translated into the vernaculars and published.